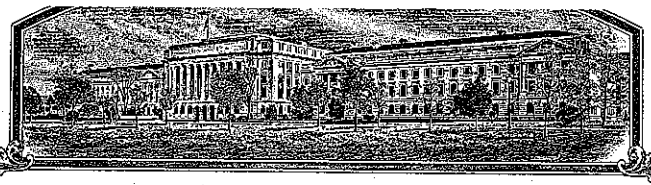
No. 200100286



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

USDA-Agricultural Research Service

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE R... 4 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'N7102'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this ninth day of April, in the year two thousand two.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

...l Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1 NAME OF OWNER
USDA- Agricultural Research Service

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
NTCPR92-115

3. VARIETY NAME
N7102

4 ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
3127 Ligon St.
Box 7631
Raleigh NC 27607

5. TELEPHONE *(Include area code)*
(919) 513-1480

6. FAX *(Include area code)*
(919) 856-4598

FOR OFFICIAL USE ONLY
PVPO NUMBER
200100281

FILING DATE
9/14/2001

7 IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
USDA-ARS (Gov. Agency)

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10 NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
3127 Ligon St.
Box 7631
Raleigh NC 27607

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 2,705.00
DATE 9/19/2001

CERTIFICATION FEE:
$ 320.00
DATE 2/27/02

11 TELEPHONE *(Include area code)*
(919) 513-1480

12. FAX *(Include area code)*
(919) 856-4598

13. E_MAIL
tommy_carter@ncsu.edu

14. CROP KIND *(Common Name)*
soybean

15 GENUS AND SPECIES NAME OF CROP
Glycine max

16. FAMILY NAME *(Botanical)*
Leguminosae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18 CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☐ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 20 and 21 below)* ☐ NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

21. IF "YES" TO ITEM 20, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER
Thomas E. Carter, Jr.

NAME *(Please print or type)*
Thomas E. Carter Jr.

CAPACITY OR TITLE
Research Geneticist

DATE
2-01-01

SIGNATURE OF OWNER

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

S&T-470 ADDENDUM

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

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1. NAME OF OWNER

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME

3. VARIETY NAME
N7102

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*

5. TELEPHONE *(include area code)*

6. FAX *(include area code)*

FOR OFFICIAL USE ONLY

PVPO NUMBER

FILING DATE

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

RECEIVED

FILING AND EXAMINATION FEES:
$
DATE

CERTIFICATION FEE:
$
DATE

11. TELEPHONE *(Include area code)*

12. FAX *(Include area code)*

13. E-MAIL

14. CROP KIND *(Common Name)*

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☐ Exhibit A. Origin and Breeding History of the Variety
b. ☐ Exhibit B. Statement of Distinctness
c. ☐ Exhibit C. Objective Description of Variety
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19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*

☒ YES *(If "yes", answer items 20 and 21 below)* ☐ NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☒ YES ☐ NO

IF YES, WHICH CLASSES? ☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO

IF YES, SPECIFY THE NUMBER 1, 2, 3, *etc.* ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?

☐ YES ☐ NO

IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?

☐ YES ☐ NO

IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

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Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE

SIGNATURE OF OWNER
Thomas E. Carter, Jr.

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE
2

Attachments to Application for Plant Variety Protection Certificate

18A.

1- "N7102" (NTCPR92-115) N7102 was developed by Dr. Thomas E. Carter, Jr., Research Geneticist, USDA-ARS. N7102 is a small-seeded late-maturing soybean adapted to the South Atlantic Coast and Southeastern USA and developed for its potential use in the Japanese soyfoods market.

2- N7102, previously identified as 'NTCPR92-115', is an F_6-derived selection from the cross of the small-seeded genotypes, 'Vance' and 'Jizuka'. Vance was derived from the cross of 'Essex' and an unknown wild (*Glycine soja, Sieb. and Zucc.)* or semi-wild soybean. Jizuka is a Japanese soyfoods variety. Vance and Jizuka were crossed in 1987 at Raleigh, NC, and the F_1 was grown in 1988. The F_2 plants were grown at Clayton, NC in 1989 and fourteen late-maturing single plants were selected and harvested. The progeny from each F_2 plant were grown and bulk harvested at the USDA-ARS Tropical Agriculture Research Station (TARS), Isabela, PR, the following winter. The F_4 plants were planted at Clayton, NC in 1990, allowed to stand well past maturity, and then rated visually for resistance to shattering. Apparent resistant plants were harvested and assayed for 100-seed weight and visual appearance. Progeny rows of 31 promising F_4 plants were grown and bulk harvested at TARS the following winter. In 1991, individual F_6 plants were harvested and assayed for 100-seed weight and visual appearance at Clayton, NC. Approximately 200 were selected for progeny increase at TARS that winter, and 28 were yield tested subsequently at Plymouth, NC in 1992.

3- In five years of testing N7102 (ST: 10/18/2002) has shown stable performance in relation to other specialty-type cultivars.

4- Off type hila color (slightly darker or lighter) can occur at a rate less than 2%.

18B.

- N7102 has yellow seed with shiny luster and clear hila, purple flowers, gray pubescence, determinate growth habit, and narrow leaves. N7102 is resistant to Soybean Mosaic Virus, frog eye leaf spot (*Cercospora sojina* Hara), and bacterial pustule (*Xanthomonas campestris pv. glycines* (Nakano) Dye) but susceptible to root knot (*Meloidogyne*) species of nematode. The lower yielding potential and small seed size of N7102 compared to commodity-type varieties limits its use to specialty purposes. N7102 matures approximately 2 days earlier than 'Cook' and is adapted to similar latitudes (approximately 31° to 37° North). Averaged over nine North Carolina environments, it produced 18% lower yield than Cook in wide (95 cm) row spacings when grown under full season conditions. The

100-seed weight of N7102 averaged 7.5g, which was smaller than that of Cook (16.9g) or Pearl (8.7g). In regional USDA Cooperative Uniform Soybean Yield Trials, the average seed protein and oil concentrations on a zero percent moisture basis for N7102 were 47.4 and 18.1% compared to Haskell with 42.8 and 20.1%. N7102 averaged 20 cm shorter than Haskell. In North Carolina, N7102 was lodging susceptible, exhibiting an average lodging score of 3.7 while Cook averaged 3.2 over two locations [a score of 1 indicates no lodging while 5 indicates a prostrate plant].

N7102 was yield tested at nine North Carolina locations from 1993 through 1997 and at five southern regional locations in 1994 as part of the USDA Cooperative Uniform Soybean Yield Trials.

N7102 is earlier in maturing and more resistant to pod shattering than N7101. N7102 has smaller seed size and is more lodging susceptible than N7103.

18C. See attached form.

18D. None.

18E. See attached form.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY SOYBEAN (*Glycine max* (L.) Merr.)

200100286

NAME OF APPLICANT(S): USDA- Agricultural Research Service

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
3127 Ligon St.
Box 7631
Raleigh NC 27607

FOR OFFICIAL USE ONLY
PVPO NUMBER: 200100286

VARIETY NAME: N7102

TEMPORARY OR EXPERIMENTAL DESIGNATION: NTCPR92-115

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. [0][9][9] **or** [0][9] **) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used:**

Please answer all questions for your variety; lack of response may delay progress of your application.

A. MORPHOLOGY

Seed Shape:

L/W= 1.3
L/T= 1.1
T/W= 1.6

[2]

1 = Spherical (L/W, L/T, and T/W ratios < 1.2)
2 = Spherical-Flattened (L/W ratio > 1.2; L/T ratio < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W ratio < 1.2)
4 = Elongate-Flattened (L/T ratio > 1.2;T/W ratio > 1.2)

Seed Coat Color:

[1]

1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (*Please Specify*) _____

Seed Coat Luster:

bt: 11/19/2001 Corrected per applicant's permission

[2]

1 = Dull 2 = Shiny

Seed Size:

[0][7] grams/100 seeds

Hilum Color:

[2]

1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black
6 = Black 7 = Other (*Please Specify*) _____

Cotyledon Color:

[2]

1 = Yellow 2 = Green

A. MORPHOLOGY (*Continued*)

200100286

Seed Protein Peroxidase Activity:

[ ] 1 = Low 2 = High

Hypocotyl Color:

[1] 1 = Green 'Evans' or 'Davis' | 2 = Green with Bronze Bands below Cotyledon 'Woodworth' or 'Tracy' | 3 = Light Purple below Cotyledons 'Beeson' or 'Pickett 71' | 4 = Dark Purple extending to unifoliolate leaves ('Hodgson', 'Coker', or 'Hampton 266A')

Leaf Shape:

[1] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (*Please Specify*) _____

Flower Color:

[2] 1 = White 2 = Purple 3 = White with a Purple Throat

Pod Color:

[1] 1 = Tan 2 = Brown 3 = Black

Pubescence Color:

[1] 1 = Gray 2 = Brown (Tawny) 3 = Light Tawny

Plant Habit:

[1] 1 = Determinate 2 = Semi - Determinate 3 = Indeterminate 4 = Intermediate

Maturity Group:

[1][0]

1 = 000 2 = 00 3 = 0 4 = I 5 = II
6 = III 7 = IV 8 = V 9 = VI 10 = VII
11 = VIII 12 = IX 13 = X 14 = XI 15 = XII

Maturity Subgroup:

[5] Please enter a value from 0 - 9

B. DISEASE REACTIONS 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Bacterial

[2] Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)

[0] Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)

[0] Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

Fungal

[0] Brown Spot (*Septoria glycines* Hemmi)

6

B. DISEASE REACTIONS (*Continued*) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Frogeye Leaf Spot (*Cercospora sojina* Hara)

[0] race 1 [0] race 2 [0] race 3 [0] race 4

[0] race 5 [0] race 6 [2] Other (*Please Specify*) Resistant to local races in the field

[0] Target Spot (*Corynespora cassiicola* (Berk. & Curt.) Wei)

20100286

[0] Downey Mildew (*Peronospora trifoliorum* var. *manchurica* (Naum.) Syd. ex Gäum)

[0] Powdery Mildew (*Microsphaera diffusa* Cke. & Pk.)

[0] Brown Stem Rot (*Phialophora gregata* (Allington & Chamberlain) W. Gams.)

[0] Stem Canker (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *caulivora* Athow & Caldwell)

[0] Pod and Stem Blight (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *sojae* (Lehman) Wehm.)

[0] Purple Seed Stain (*Cercospora kikuchii* (T. Matsu. & Tomoyasu) Gardener)

[0] Rhizoctonia Root Rot (*Rhizoctonia solani* Kühn)

Phytophthora Root Rot (*Phytophthora megasperma* Drechs. f. sp. *glycinea* (Kuan & Erwin))

[0] race 1 [0] race 2 [0] race 3 [0] race 4 [0] race 5 [0] race 6 [0] race 7

[0] race 8 [0] race 9 [0] race 10 [0] race 11 [0] race 12 [0] race 13 [0] race 14

[0] race 15 [0] race 16 [0] race 17 [0] race 18 [0] race 19 [0] race 20 [0] race 21

[0] race 22 [0] race 23 [0] race 24 [0] race 25 [0] race 26 [0] Other (*Please Specify*) : _____

[0] Bud Blight (Tobacco Ringspot Virus)

[0] Yellow Mosaic (Bean Yellow Mosaic Virus)

[0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] Pod Mottle (Bean Pod Mottle Virus)

B. DISEASE REACTIONS (*Continued*) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[2] Seed Mottle (Soybean Mosaic Virus)

Nematode

20010286

Soybean Cyst Nematode (*Heterodera glycines* Ichinohe)

[1] race 1
[1] race 2
[1] race 3
[1] race 4
[1] race 5
[1] race 6
[1] race 9
[1] race 14 (former r. 4)
[ ] Other (*Please Specify*) _____

[2] Lance Nematode (*Hoplolaimus columbus* Sher)

[1] Southern Root Knot Nematode (*Meloidogyne incognita* (Kofoid & White) Chitwood)

[1] Northern Root Knot Nematode (*Meloidogyne hapla* Chitwood)

[1] Peanut Root Knot Nematode (*Meloidogyne arenaria* (Neal) Chitwood)

[0] Reniform Nematode (*Rotylenchus reniformus* Linwood & Olivera)

[1] Javanese Nematode (*Meloidogyne javanica* (Treub) Chitwood)

[ ] Other Nematode (*Please Specify*) _____

C. PHYSIOLOGICAL RESPONSES 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[0] Iron Chlorosis on Calcareous Soil

[0] Phosphorus

[0] Boron

[0] Aluminum

[0] Salt

[0] Drought

[2] Other (*Please Specify*) pod shattering after maturity

D. INSECT REACTIONS 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

[0] Mexican Bean Beetle (*Epilachna varivestis* Mulsant)

[0] Potato Leaf Hopper (*Empoasca fabae* (Harris))

20100286

[0] Other (*Please Specify*) _____

E. HERBICIDE REACTIONS 0 = Not Tested 1 = Susceptible 2 = Resistant

[0] Metribuzin

[0] Bentazone

[0] Sulfonylurea

[1] Glyphosate

[0] Glufosinate

[0] Pendimethalin

[ ] Other (*Please Specify*) _____

F. TRANSGENIC COMPOSITION

Has the development of the Subject Variety included the insertion or removal of genetic material? [ ] YES [X] NO
If yes, please complete the following information requests*. Use additional pages if necessary.

1. Please state the vector's name:

2. Please state the vector components:

3. Please describe the genetic material successfully transferred into the Subject Variety:

4. Please describe the insertion protocol:

* A literature citation(s) explaining the four information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form.

G. BIOCHEMICAL MARKERS

Please describe any biochemical information here which you believe will be helpful in further describing the Subject Variety (*e.g.* Simple Sequence Repeats, Restriction Fragment Length Polymorphisms, Isozymic Characterization). Use additional pages if necessary.

H. COMMENTS

Table 1. Agronomic performance of advanced soybean breeding lines.

	TESTS IN NC (1993-97) †				USDA REGIONAL TRIALS (1994) ‡						
GENOTYPES	MATURITY	YIELD	100 SEED WT.	SWELL RATIO ¶	MATURITY	YIELD	100 SEED WT.	PROTEIN	OIL	LODGE	PLANT HEIGHT
	Oct 1=1	bu/a	g/100 seeds		Oct 1=1	bu/a	g/100 seeds	%	%	1-5	inch
NTCPR92-100	**31**	**40**	**7.3**	**2.28**	**12**	**31**	**7.7**	**47.1**	**17.8**	**2.4**	**35**
NTCPR92-115	**29**	**39**	**7.4**	**2.30**	**9**	**38**	**8.0**	**47.4**	**18.1**	**2.5**	**30**
PEARL	**30**	**45**	**8.7**	**2.25**							
COOK	**31**	**49**	**16.7**	**2.30**							
HASKELL					**11**	**48**	**15.5**	**42.8**	**20.1**	**2.4**	**38**
LSD(0.05)	1	1	0.4	0.03		7	1.6	1.2	1.5	0.6	3

† Mean of 9 environments.

‡ Mean of 5 locations across the South in 1994: Athens, GA, Beaumont, TX, Jackson Springs, NC, Stoneville, MS and Tallassee, AL (Preliminary Trial Group VII)

¶ Swell Ratio = weight of seed after 14 hours of inbibition in water divided by initial dry weight.

Table 2. Yield, 100-seed weight, maturity, and swell ratio of advanced breeding lines in North Carolina during 1993-1997.

GENOTYPES	1993 Plymouth SMSD10	1993 Windblow SMSD10	1994 Clayton SMSD11	1994 Plymouth SMSD11	1995 Plymouth SMSD12	1996 Whiteville TCDIVLP4	1996 Windblow TCDIVLP4	1997 Clayton SOYRET2	1997 Windblow SOYRET2	MEAN
					YIELD (bu/ac)					
NTCPR92-100	37	46	48	38	43	37	31	41	41	40
NTCPR92-115	35	46	50	33	38	35	33	40	36	39
COOK	46	56	53	47	51	49	41	52	49	49
PEARL	43	53	54	41	48	40	37	50	41	45
LSD(0.05)			6	5	4	5	5	8	6	2
					100-SEED WT. (g)					
NTCPR92-100	7.0	7.3	7.6	7.2	6.9	6.3	7.2	9.1	7.4	7.3
NTCPR92-115	7.9	7.2	7.7	6.9	7.7	6.6	7.3	8.3	7.3	7.4
COOK	17.6	16.9	17.2	15.8	15.9	16.5	16.0	18.0	16.3	16.7
PEARL	9.6	8.5	8.2	8.3	8.5	8.5	7.8	9.7	8.9	8.7
LSD(0.05)			0.6	0.7	0.6	1.1	2.1	1.5	1.2	0.4
					MATURITY (Oct. 1=1)					
NTCPR92-100	--	--	29	31	30	30	30	35	35	31
NTCPR92-115	--	--	29	26	30	27	27	32	32	29
COOK	--	--	28	30	30	30	30	34	35	31
PEARL	--	--	27	27	30	27	29	36	35	30
LSD(0.05)			2	2	2	6	4	3	5	1
					SWELL RATIO					
NTCPR92-100	2.28	2.29	2.26	2.28	--	--	--	--	--	2.28
NTCPR92-115	2.28	2.28	2.30	2.32	--	--	--	--	--	2.30
COOK	2.28	2.33	2.29	2.29	--	--	--	--	--	2.30
PEARL	2.24	2.24	2.25	2.27	--	--	--	--	--	2.25
LSD(0.05)			.029	.032						0.03

The United States Department of Agriculture
Agricultural Research Service
Washington, DC 20250

NOTICE OF RELEASE OF *N7101* AND *N7102* SOYBEAN CULTIVARS

The U.S. Department of Agriculture announces the release of soybean [*Glycine max* (L.) Merr.] cultivars N7101 and N7102. N7101 and N7102 are small-seeded late-maturing soybeans adapted to the South Atlantic Coast and Southeastern USA and developed for their potential use in the Japanese soyfoods market. N7101 and N7102 were developed by Dr. Thomas E. Carter, Jr., Research Geneticist, USDA-ARS, Raleigh, North Carolina.

N7101 and N7102, previously identified as 'NTCPR92-100' and 'NTCPR92-115', respectively, are F_6-derived selections from the cross of the small-seeded genotypes 'Vance' and 'Jizuka'. Vance was derived from the cross of 'Essex' and an unknown wild (*Glycine soja, Sieb. and Zucc.)* or semi-wild soybean. Jizuka is a Japanese soyfoods variety. Vance and Jizuka were crossed in 1987 at Raleigh, NC, and the F_1 was grown in 1988. The F_2 plants were grown at Clayton, NC in 1989 and fourteen late-maturing single plants were selected and harvested. The progeny from each F_2 plant were grown and bulk harvested at the USDA-ARS Tropical Agriculture Research Station (TARS), Isabela, PR, the following winter. The F_4 plants were planted at Clayton, NC in 1990, allowed to stand well past maturity, and then rated visually for resistance to shattering. Apparent resistant plants were harvested and assayed for 100-seed weight and visual appearance. Progeny rows of 31 promising F_4 plants were grown and bulk harvested at TARS the following winter. In 1991, individual F_6 plants were harvested and assayed for 100-seed weight and visual appearance at Clayton, NC. Approximately 200 F_6 plants were selected for progeny increase at TARS that winter and 28 were yield tested subsequently at Plymouth, NC in 1992. N7101 and N7102 were yield tested at nine North Carolina locations from 1993 through 1997 and at five southern regional locations in 1994 as part of the USDA Cooperative Uniform Soybean Yield Trials. N7101 and N7102 trace to different F_2 plants from the same cross.

N7101 is similar in maturity to 'Cook', while N7102 matures approximately 2 days earlier. Both are adapted to similar latitudes (approximately 31° to 37°). N7101 and N7102 produced 17 and 18 % lower average yields compared to Cook, respectively, when grown in wide (95 cm) row spacings under full-season conditions in nine different North Carolina environments. The 100-seed weight of N7101 and N7102 averaged 7.3 and 7.5g, respectively, which was smaller than that of Cook (16.7g) or Pearl (8.7g). In the regional USDA Cooperative Uniform Soybean Yield Trials, the average seed protein and oil concentrations on a zero percent moisture basis for N7101, N7102 and Haskell were

47.1 and 17.8 %, 47.4 and 18.1%, and 42.8 and 20.1%, respectively. N7101 and N7102 plant heights averaged 7 and 20 cm shorter than Haskell, respectively. In North Carolina, N7101 and N7102 are lodging susceptible, exhibiting an average lodging score of 3.9 and 3.7, respectively, compared with Cook's average score of 3.2 over two locations [a score of 1 indicates no lodging while 5 indicates a prostrate plant]. N7101 is moderately resistant to pod dehiscence (shattering) after maturation, but can exhibit more than 20% pod dehiscence if harvest is delayed extensively. By contrast, N7102 is resistant to pod dehiscence (shattering) after maturation, even when harvest is delayed extensively. N7101 and N7102 have yellow seed with shiny luster and clear hila, purple flowers, gray pubescence, determinate growth habit, and narrow leaves. N7101 and N7102 are resistant to Soybean Mosaic Virus, frog eye leaf spot (*Cercospora sojina* Hara), and bacterial pustule (*Xanthomonas campestris pv. glycines* (Nakano) Dye) but susceptible to root knot (*Meloidogyne*) species of nematode. The small seed size and lower yield potential of N7101 and N7102, compared to commodity-type varieties, limits their use to specialty purposes.

Breeder's seed of N7101 and N7102 will be maintained by the Soybean and Nitrogen Fixation Unit, USDA-ARS, 3127 Ligon St., Raleigh, NC 27607. Small quantities can be obtained by request from Thomas E. Carter. Jr. Seed of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new cultivars. N7101 and N7102 will be submitted for U.S. Plant Variety Protection. It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar. USDA intends to grant an exclusive license for production and sale of this release to North Carolina State University, Raleigh, NC. A note of this intent will be published in the Federal Register.

Administrator, U.S. Department of Agriculture
Agricultural Research Service

5/17/00
Date

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
USDA- Agricultural Research Service	NTCPR92-115	N7102
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(include area code)*	**6. FAX** *(include area code)*
3127 Ligon St. Box 7631 Raleigh NC 27607	(919) 513-1480	(919) 856-4598
	7. PVPO NUMBER	200100286

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? [ ] YES [X] NO
If no, give name of country

10. Is the applicant the original owner? [XX] YES [ ] NO ***If no, please answer one of the following:***

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

N/A [ ] YES [ ] NO If no, give name of country

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?

N/A [ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

STD-470-E (07-97) *(Destroy previous editions).*
Electronic version designed using WordPerfect InForms by USDA-AMS-IMB.